What is claimed is:

1. Apparatus for isolating an electrostatic sprayer from an electrically grounded coating product distribution circuit connected thereto, the apparatus comprising:

an electrostatic sprayer carried by a maneuverable robot arm, the sprayer capable of spraying an electrically conductive coating product onto a workpiece passing in adjacent proximity thereby on command,

said coating product being supplied from a source of supply through at least one said distribution circuit connected to said sprayer,

said apparatus including therein, and carried by said robot arm, an electrically insulative storage tank for said coating product in valved fluid communication with said sprayer and connected to and positioned downstream from a length of electrically insulative supply conduit,

said length of supply conduit connected to said distribution circuit and carried by said robot arm and including

means for cleaning a portion, including all, of said length of supply conduit, in situ, after filling of said storage tank with coating product and before spraying, such that substantially all of said conductive coating product is removed from said portion of supply conduit, thereby isolating said sprayer electrically from said distribution circuit.

2. The apparatus of claim 1 wherein said storage tank and supply conduit are formed within a unitary housing.

3. The apparatus of claim 1 wherein said supply conduit is formed of polyacetal resin.

4. The apparatus of claim 2 wherein said housing is formed of polyacetal resin.

5. The apparatus of claim 1 wherein containment and storage of said coating product prior to spraying are effected within a deformable membrane housed within said storage tank.

6. The apparatus of claim 5 wherein spraying is effected by metered pump means positioned downstream of said storage tank and upstream from said sprayer.

7. The apparatus of claim 6 wherein said pump means is a gear pump.

8. The apparatus of claim 5 wherein said membrane is made of an elastomer.

9. The apparatus of claim 8 wherein said elastomer is a fluoroelastomer.

10. The apparatus of claim 9 wherein said elastomer is a fluorinated ethylene propylene (FEP) elastomer.

11. The apparatus of claim 9 wherein said elastomer is a perfluoroalkyl (PFA) elastomer.

12. The apparatus of claim 1 wherein containment and storage of said coating product is effected within the chamber of a piston-and-cylinder assembly housed within said storage tank prior to spraying.

13. The apparatus of claim 1 wherein containment and storage of said coating product is effected within a balloon-like chamber housed within said storage tank prior to spraying.

14. The apparatus of claim 1 wherein said supply conduit is tubular.

15. The apparatus of claim 14 wherein said means for cleaning said supply conduit includes a plunger positioned within said conduit and adapted to reciprocally traverse said length of said conduit.

16. The apparatus of claim 15 wherein said plunger is made of a fluoroelastomer.

17. The apparatus of claim 15 including driving means for driving said plunger reciprocally back-and-forth through said length of said conduit on command.

18. The apparatus of claim 17 wherein said driving means comprises air under pressure controlled by valving.

19. The apparatus of claim 18 having a valve-controlled source of compressed air connected thereto.

20. The apparatus of claim 1 including a valve-controlled source of solvent connected to said distribution circuit.

21. The apparatus of claim 20 wherein said solvent is water.

22. The apparatus of claim 21 wherein said solvent is de-ionized water.

23. The apparatus of claim 1 including a high voltage generator carried within said robot arm, said generator being supplied with low voltage via an isolated connector from an external voltage source.

24. The apparatus of claim 1 connected to a plurality of coating product distribution circuits, said circuits optionally distributing coatings of different colors.

25. The apparatus of claim 1 connected to a source of water-based paint.

26. An installation for coating a plurality of workpieces simultaneously, said installation including a plurality of the apparatus of claim 1 connected to a plurality of coating product distribution circuits.

27. The apparatus of claim 1 wherein said workpiece is an automotive vehicle.

28. The apparatus of claim 26 wherein said workpieces are automotive vehicles.

29. Apparatus for isolating an electrostatic sprayer from an electrically grounded, water-based paint distribution circuit connected thereto, the apparatus comprising:

an electrostatic spray applicator carried by a maneuverable robot arm, the applicator capable of spraying water-based paint onto an automotive vehicle passing in adjacent proximity thereby on command,

said paint being supplied from a paint source through at least one grounded distribution circuit connected to said applicator,

said apparatus including therein, and carried by said robot arm, an electrically insulative storage tank for said paint in valved fluid communication with said applicator and connected to and positioned downstream from a length of electrically insulative supply conduit,

said length of supply conduit connected to said distribution circuit and carried by the robot arm and including

plunger means for cleaning a portion, including all, of said length of supply conduit, in situ, after filling of said storage tank with water-based paint and before spraying, such that substantially all of said conductive paint is removed from said portion of supply conduit, thereby isolating said applicator from said distribution circuit, wherein

said storage tank and supply conduit are formed within a unitary housing, all made of polyacetal resin, and

containment and storage of the paint prior to spraying are effected within a deformable membrane of a fluorinated ethylene propylene (FEP) elastomer, and

said supply conduit is tubular having a plunger of a fluoroelastomer positioned therein and adapted to reciprocally traverse said length of said conduit, and including a

valve-controlled source of compressed air connected thereto providing valve-controlled driving means for driving said plunger reciprocally back-and-forth through said conduit on command.

30. An installation for painting a plurality of automotive vehicles simultaneously, including a plurality of the apparatus of claim 29 connected to a plurality of water-based paint distribution circuits.

31. A process for electrostatically spraying an electrically conductive coating onto a workpiece comprising:

spraying said conductive coating onto a workpiece passing in adjacent proximity thereto using an electrostatic sprayer carried by a maneuverable robot arm, after

supplying said coating to said sprayer from a source of supply through at least one grounded distribution circuit connected to said sprayer, wherein

said robot arm carries therein an electrically insulative storage tank for said coating in valved fluid communication with said sprayer and being connected to and positioned downstream from a length of electrically insulative supply conduit, said length of supply conduit also being carried by said robot arm, and

cleaning a portion, including all, of said length of supply conduit, in situ, after filling of said storage tank with coating product and before spraying, thereby

removing substantially all of said conductive coating product from said portion of supply conduit resulting in isolating said sprayer electrically from said distribution circuit before said spraying.

32. The process of claim 31 wherein said storage tank and supply conduit are formed within a unitary housing.

33. The process of claim 31 wherein said supply conduit is formed of polyacetal resin.

34. The process of claim 32 wherein said housing is formed of polyacetal resin.

35. The process of claim 31 including containing and storing said coating product in said storage tank prior to spraying within a deformable membrane housed within said storage tank.

36. The process of claim 35 including effecting spraying using metered pump means positioned downstream of said storage tank and upstream from said sprayer.

37. The process of claim 36 wherein pumping is effected by a gear pump.

38. The process of claim 35 wherein said membrane is made of an elastomer.

39. The process of claim 38 wherein said elastomer is a fluoroelastomer.

40. The process of claim 39 wherein said elastomer is a fluorinated ethylene propylene (FEP) elastomer.

41. The process of claim 39 wherein said elastomer is perfluoroalkyl (PFA) elastomer.

42. The process of claim 31 including containing and storing said coating product prior to spraying within the chamber of a piston-and-cylinder assembly housed within said storage tank.

43. The process of claim 31 including containing and storing said coating product prior to spraying within a balloon-like chamber housed within said storage tank.

44. The process of claim 31 wherein said supply conduit is tubular.

45. The process of claim 44 including cleaning said supply conduit using a plunger fitted therein and adapted to reciprocally traverse said length of the conduit, effectively wiping it clean of coating product.

46. The process of claim 45 wherein said plunger is made of a fluoroelastomer.

47. The process of claim 45 including driving said plunger reciprocally back-and-forth through said length of said conduit, on command.

48. The process of claim 47 wherein said driving is effected using air under pressure controlled by valving.

49. The process of claim 48 including a valve-controlled source of compressed air connected thereto.

50. The process of claim 31 including, prior to and after spraying, flushing all system components which contact coating product with, optionally, a solvent, air, or optionally a solvent-air mixture.

51. The process of claim 50 wherein said solvent is water.

52. The process of claim 51 wherein said solvent is de-ionized water.

53. The process of claim 31 including providing a high voltage generator carried within said robot arm, and supplying said generator with low voltage via an isolated connector from an external voltage source.

54. The process of claim 31 including connecting a plurality of coating product distribution circuits to said sprayer, said circuits optionally distributing coatings of different colors.

55. The process of claim 31 for spraying a water-based paint.

56. Carrying out the process of claim 31 at a plurality of locations in an installation for coating a plurality of workpieces simultaneously.

57. The process of claim 31 wherein said work-piece is an automotive vehicle.

58. The process of claim 56 wherein said work-pieces are automotive vehicles.